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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,239	01/23/2004	Jong Soo Woo	HPC-001/CONT	4513

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EXAMINER	
BERKO, RETFORD O	

ART UNIT	PAPER NUMBER
1615	

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/762,239	WOO, JONG SOO	
	Examiner	Art Unit	
	Retford Berko	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement: The Preliminary Amendment filed January 23, 2004 is acknowledged.

Status of Claims

Claims 1, 2, 8, 9, 10 and 11 are pending.

Claims 3-7 are cancelled in view of applicant's amendment.

Claim Rejections –Sec 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> the specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1, 2, 9 and 11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are drawn toward a pharmaceutical formulation comprising a core of benzimidazole drug; said formulation having enteric coating wherein the coating agent is hydroxypropylmethylcellulose phthalate (HPMCP). According to the claims, the coating agent is on the surface of the core, has a degree of substitution by phthalic acid group of 20-70% omeprazole or other benzimidazole.

The issue is (i) whether the core of the formulation is 100% omeprazole and the omeprazole is admixed with the coating agent wherein the omeprazole constitutes 20-70% of the enteric coating or (ii) where the benzimidazole derivative is not omeprazole, whether the core of the formulation is made up of 100% of the specified benzimidazole (e.g. picoprazole) and the enteric coating is made up of 20-70% omeprazole or (iii) whether the core of the formulations is made up of 100% omeprazole and that the enteric coating comprises of the specified benzimidazole derivative.

Applicant is advised to clarify the claims in regards to the issues (i) to (iii) by specifying the exact benzimidazole derivative that forms the core of each formulation and the percent of what derivative of the benzimidazole that is present in the enteric coating.

The examiner is interpreting the claims as consistent with the meanings of the three possibilities as outlined under this section.

Claim Rejections-35 USC Sec. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1, 2 8, 9, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lovgren et al (US 4, 786, 505) in view of Makino et al (US 5, 026, 560) further in view of Sarett et al (US 3, 336, 192).

The claims are drawn toward enteric coated formulation of a benzimidazole derivative comprising a core containing a complex of benzimidazole derivative and an ion exchange resin and enteric coating on the surface of the core. According to the claims, the enteric coating is

hydroxypropylmethylcellulose phthalate (HPMCP) having a degree of substitution by phthalic acid group of 20-27% omeprazole, pantoprazole, timoprazole or picoprazole. The claims are also directed toward a method of preparing the formulation; said method comprising coating the core containing benzimidazole and ion-exchange resin with enteric coating agent (HPMCP) having a degree of substitution by phthalic acid group of 20-27% omeprazole, pantoprazole, timoprazole or picoprazole. The claims further specify the benzimidazole derivative---i.e. that the formulation comprises of pantoprazole, timoprazole or picoprazole.

Lovgren et al (Patent '505) disclose a pharmaceutical preparation comprising omeprazole as the core of the tablet formulation (col 11, lin 50); said formulation having enteric coating comprising of hydroxypropymmethylcellulose phthalate (col 17, lin 15) and a process of preparation of the formulation (col 18, lin 15-20).

Patent '505 does not disclose the use of ion-exchange resin in combination with the benzimidazole in preparing the core of the formulation.

Makino et al (Patent '560) disclose spherical granules having a core comprising of benzimidazole derivatives and enteric coating (abstract, col 3, lin 25-40 and col 9, lin 20-50). According to Makino et al, the enteric coating of the formulation comprises of anionic acrylate copolymer—HPMCP (col 10, lin 50-55).

Sarett et al (Patent '192) disclose antihelmintic composition comprising benzimidazoles and a method of making the formulation (col 5, lin 35 and col 12, lin 10-40). Patent '192 discloses the use of a resins as ingredient for making the composition; pointing out that the resin and other active ingredients used in that formulation in that invention such as waxes, synthetic polymers when associated with the benzimidazole active ingredient maintains the ingredient in

inert or inoperative form so long as the composition remains in the acidic stomach (col 6, lin 35-50).

One of ordinary skill in the art would have been motivated to prepare a pharmaceutical composition having benzimidazole and ion exchange resins as active ingredients and coat the formulation with enteric coating agent such as HPMP as per the disclosures in the cited prior art. One of ordinary skill in the art would expect that by incorporating the drug into an enteric coating polymeric material such as HPMCP, one of ordinary skill would obtain a stablilized imiprazole formulation for delayed release targeting of the drug into the ileim and/or colon. In short, enteric coated omeprazole formulation can survive the acidic environment of the stomach and release the drug into the distal portions of the gastrointestinal tract where the pH is alkaline. Tthe presence of acid is a prerequisite to the conversion of omeprazole to its chemically active form but the resulting active compound—sulfenamide is a labile molecule which transforms further to unreactive compounds. Hence, enterically coating the drug to resist the acid medium in the stomach is useful for obtaining the drug in active form for treatment of intestinal infections. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill at the time the invention was made.

2. Claims 1, 2 8, 9, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lovgren et al (US 4, 786, 505) in view of Chen et al (US 6, 726, 927; filed August 27, 1998) further in view of Pierre et al (US 3, 324, 102).

The claims are as discussed in section one above.

The disclosures of Lovgren et al (Patent '505) are also discussed above.

Lovgren et al do not disclose the use of ion-exchange resin in combination with the benzimidazole in preparing the core of the formulation and Lovgren et al also do not disclose the use of other benzimidazole derivatives.

Chen et al (Patent '972) disclose enteric coated pharmaceutical dosage forms containing omeprazole or lansoprazole as the core ingredient and the process or method for their manufacture (abstract and col 10, lin 15-40).

Chen et al do not disclose the use of any other benzimidazole derivatives in the formulations.

Pierre et al (Patent '102) disclose water-soluble benzimidazole-containing compositions and methods for making the compositions having several derivatives as active ingredients. More importantly, Patent '102 discloses that enteric vehicles and compositions are particularly useful for treatment of animals suffering from severe helminthic infections of the intestinal tract and that the enteric property can be imparted to the formulation by coating said formulations with enteric coatings containing resins, waxes, synthetic polymers; etc.

One of ordinary skill in the art would have been motivated to prepare a pharmaceutical composition having benzimidazole and ion exchange resins as active ingredients and coat the formulation with enteric coating agent such as HPMP as per the disclosures in the cited prior art. One of ordinary skill in the art would expect that by incorporating the drug into an enteric coating polymeric material such as HPMCP, one of ordinary skill would obtain a stablilized imiprazole formulation for delayed release targeting of the drug into the ileim and/or colon. In short, enteric coated omeprazole formulation can survive the acidic environment of the stomach and release the drug into the distal portions of the gastrointestinal tract where the pH is alkaline.

The presence of acid is a prerequisite to the conversion of omeprazole to its chemically active form but the resulting active compound—sulfenamide is a labile molecule which transforms further to unreactive compounds. Hence, enterically coating the drug to resist the acid medium in the stomach is useful for obtaining the drug in active form for treatment of intestinal infections.

Furthermore, in view of the use of derivatives of benzimidazole in formulations by Pierre et al (Patent '102), one of ordinary skill would be have expected reasonable success in substituting one derivative for the other in making the formulations, as in the instant claims. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill at the time the invention was made.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Retford Berko** whose telephone number is 571-272-0590. The examiner can normally be reached on M-F from 8.00 am to 5.30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Thurman K Page**, can be reached on 571-272-0602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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